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First assessment of biomass and abundance of cephalopods Rossia palpebrosa and Gonatus fabricii in the Barents Sea

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Abstract

Copyright © Marine Biological Association of the United Kingdom 2016Studies on the quantitative distribution of cephalopods in the Arctic are limited, and almost completely absent for the Barents Sea. It is known that the most abundant cephalopods in the Arctic are Rossia palpebrosa and Gonatus fabricii. Their biomass and abundance have been assessed for the first time in the Barents Sea and adjacent waters. The maximum biomass of R. palpebrosa in the Barents Sea was 6.216–6.454 thousand tonnes with an abundance of 521.5 million specimens. Increased densities of biomass were annually registered in the north-eastern parts of the Barents Sea. The maximum biomass of G. fabricii in the Barents Sea was 24.797 thousand tonnes with an abundance of 1.705 billion specimens. The areas with increased density of biomass (higher than 100 kg km−2) and abundance (more than 10,000 specimens km−2) were concentrated in deep-water troughs in the marginal parts of the Barents Sea and in adjacent deep-water areas. The biomass and abundance of R. palpebrosa and G. fabricii in the Barents Sea were much lower than those of major taxa of invertebrates and fish and than those of cephalopods in other parts of the World Ocean. It has been suggested that the importance of cephalopods in the Arctic ecosystems, at least in terms of quantitative distribution, could be somewhat lower than in the Antarctic or the tropics. Despite the impact of ongoing warming of the Arctic on the distribution of cephalopods being described repeatedly already, no impact of the current year's climate on the studied species was found. The only exception was the abundance of R. palpebrosa, which correlated with the current year's climate conditions.

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Keywords

abundance assessment, Barents Sea, Biomass assessment, Cephalopoda, Gonatus fabricii, Rossia palpebrosa